

25 April 2005

CRUISE RESULTS

NOAA FRV ALBATROSS IV
Cruise No. AL 04-02 (Parts I-II)
Winter Bottom Trawl Survey

CRUISE PERIOD AND AREA

The cruise period was from 3-28 February 2004. The cruise was conducted in two parts: Part I was from 3-13 February and Part II was from 18-28 February. The area of operations was from Cape Hatteras to the eastern portion of Georges Bank. Station locations are shown in Figure 1.

OBJECTIVES

The objectives of the cruise were to: (1) determine the seasonal distribution, relative abundance, and biodiversity of fish and invertebrate species found on the continental shelf; (2) collect biological samples for age determinations and growth studies, fecundity, maturity, and feeding ecology; (3) collect hydrographic and meteorological data; (4) collect samples of ichthyoplankton and zooplankton for relative abundance and distribution studies; (5) collect data and samples for cooperative researchers and programs; and (6) conduct a hydroacoustic survey between stations.

METHODS

Operations and gear used during Parts I-II conformed with the Cruise Instructions for the Winter Bottom Trawl Survey dated 8 January 2004, Addendum 1 dated 2 February 2004; and Addendum 2 dated 9 February 2004 with the following exceptions: Part I made a port call to Norfolk, VA on 7 February due to adverse weather conditions and resumed the survey on 9 February; Part II left one day later than originally scheduled due to mechanical problems.

A 30-minute tow was made at each station with a Northeast Fisheries Science Center (NEFSC) standard 36 Yankee "flatfish" net rigged with a rubber disc covered chain

sweep, 11 floats, and 55 meter ground cables. NEFSC standardized 450 kilogram (kg) polyvalent trawl doors rigged with chain backstraps were used. The trawl was fished at a scope of 4:1 in depths between 18 and 27 m, 3:1 in depths between 28 and 183 m deep, and 2.5:1 in depths of 184 m and greater. Towing speed was maintained at approximately 3.8 knots using DGPS instrumentation. Direction of the tow was generally toward the next station. Throughout the cruise, a hydroacoustic survey was conducted during transit between bottom trawl stations using the Simrad EK-500 system.

After each tow, the catch was sorted by species and weighed to the nearest 0.001 kg using motion-compensated digital scales. Representative length frequencies were collected for all species caught. All catch and biological data were recorded using shipboard automated data entry systems. The Fisheries Scientific Computing System (FSCS) was used to record all biological data. This system uses digital scales, electronic measuring boards, touch screen displays and barcode scanners to record data on deck, and archives the data on the ship's computer network.

Sampled fish were assigned individual identification numbers, measured, weighed to the nearest 0.001 kilogram, and further sampled for age and growth and feeding ecology studies. Bony fish were measured to the nearest centimeter to the end of the central caudal ray; biological samples were collected concurrently with measuring operations. Sharks and skates were measured to the end of the caudal fin (total length). Rays were measured for disk width. Lobsters were measured in millimeters from the posterior edge of the eye socket to the end of the carapace; the presence or absence of a V-notch was also noted. Crabs were measured across the carapace width in centimeters. Shell height was measured in centimeters for selected bivalves. Additional collections were obtained for various scientists (Table 2). The remainder of the catch (miscellaneous invertebrates, shells, substrate, etc) was described by volume.

Surface temperatures were measured using the hull-mounted temperature sensor at a depth of 3 meters. Temperature and conductivity profiles were recorded at each station using a conductivity, temperature, and depth (CTD) instrument. A bottom salinity sample was obtained twice each day to calibrate the CTD. Water samples were also taken for fluorometer calibrations.

Samples of fish eggs and larvae were collected at selected stations. Plankton sampling gear consisted of a 61 cm bongo frame fitted with 0.333 mm mesh nets. Digital flow meters were suspended within the mouths of the bongo frame to estimate water volume filtered. The net was towed at 2.8-3.8 kilometers/hour (1.5-2.0 knots). A CTD was deployed at each plankton station.

RESULTS

The survey sampled at 140 stations with 59 and 81 stations completed on Parts I and II respectively.

Standard plankton tows were made at 28 stations. Bottom temperatures were collected at 140 stations using the CTD system. Bottom water samples for CTD calibration were taken at 25 stations.

Tables 1 and 2 list the major samples collected for various studies.

DISPOSITION OF SAMPLES AND DATA

Age and growth samples, feeding ecology data and samples, maturity data, trawl catch data, and hydrographic data will be analyzed at the NEFSC Woods Hole, Massachusetts Laboratory. The various collections were forwarded to the individuals listed in Table 2. Resulting data will be audited, edited, and loaded into the NEFSC trawl survey database.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFSC, Woods Hole, MA

John Galbraith, Chief Scientist¹
Wendy Gabriel, Chief Scientist²
Peter Chase²
Robert Johnston¹
Nathan Keith²
Paul Kostovick¹
Christopher Legault¹
Kevin McIntosh²
David Mountain²
Stacy Rowe¹
Nina Shepherd²
Katherine Sosebee¹
Mark Terceiro¹

Virginia Institute of Marine Science, Gloucester Point, VA

Charles Cotton¹
Roy Pemberton Jr.¹

MOTE Marine Lab, Sarasota, FL

April Cook¹

University of Delaware, Newark, DE

Jason Didden¹

Massachusetts Maritime Academy, Warwick, RI

Jonathan Chaffee^{1,2}

Contractors

Lisa Bonacci²

John Cookingham²

Sean Lucey¹

Amy Poe²

Falmouth, MA

Falmouth, MA

South Yarmouth, MA

Portland, OR

Volunteers

Bruce Beagley²

Jakub Kircun^{1,2}

Scituate, MA

Ashford, CT

¹3-13 February

²18-28 February

For further information contact: Russell Brown, National Marine Fisheries Service, Northeast Fisheries Science Center, Woods Hole, Massachusetts 02543-1097. Phone (508) 495-2380; FAX (508) 495-2258; Russell.Brown@noaa.gov. The Resource Survey Report for this survey can be viewed at http://www.nefsc.noaa.gov/esb/Resource_Survey_Reports.htm and the cruise results can be viewed at <http://www.nefsc.noaa.gov/esb/survey.htm>.

Table 1. Field observations and samples collected for feeding ecology, and age and growth studies on the FRV ALBATROSS IV, Cruise 04-02 (I-II), Winter Bottom Trawl Survey, during 3-28 February 2004.

Species	Feeding Ecology Observations	Age and Growth Samples
Alewife	3	-
American plaice	3	-
American shad	29	-
Atlantic angel shark	2	-
Atlantic cod	58	117
Atlantic herring	127	364
Atlantic mackerel	94	248
Black sea bass	121	361
Barndoor skate	1	152
Blackbelly rosefish	34	-
Blueback herring	32	-
Butterfish	104	-
Clearnose skate	-	141
Fawn cusk-eel	54	-
Fourspot flounder	272	4
Goosefish	363	605
Haddock	40	98
Little skate	211	220
Longhorn sculpin	51	-
Ocean pout	67	-
Offshore hake	41	108
Pollock	1	1
Red hake	108	1
Rosette skate	61	65
Scup	35	64
Sea raven	34	-
Silver hake	190	8
Smooth dogfish	76	-
Spiny dogfish	444	5
Spotted hake	199	1
Striped bass	6	6
Summer flounder	474	1,153
Thorny skate	1	1
Weakfish	1	1
White hake	19	-
Windowpane	133	316
Winter flounder	49	94
Winter skate	159	175
Witch flounder	134	12
Yellowtail flounder	107	167
TOTALS	3,938	4,488

Table 2. Miscellaneous scientific collections made on the FRV ALBATROSS IV, Cruise 04-02 (I-II), Winter Bottom Trawl Survey, during 3-28 February 2004.

Investigator and Affiliation	Samples Saved	Approximate Number
Aquarium, NMFS, NEFSC, Woods Hole, MA	Atlantic herring	5 bags
	Longfin squid	11 bags
	Live species	3 indiv.
Peter Chase, NMFS, NEFSC, Woods Hole, MA	Various species, maturity workshop	94 indiv.
Bruce Collette, NMFS Nat'l Systematics Lab, Washington, DC	Snake mackerel	1 indiv.
Chip Cotton, VIMS, Gloucester Point, VA	Atlantic angel shark	1 indiv.
	Blackbelly rosefish	1 indiv.
Michael Fine, Virginia Commonwealth University, Richmond, VA	Cusk eel	1 indiv.
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Misc. species	312 indiv.
Devorah Hart, NMFS, NEFSC, Woods Hole, MA	Sea scallops	65 indiv.
Josef Idoine, NMFS, NEFSC, Woods Hole, MA	Shrimp	1 bag
	American lobster	1 indiv.
Charles Keith, NMFS, NEFSC, Woods Hole, MA	Atlantic hagfish	12 indiv.
K. B. McArdle, NMFS, NEFSC, Woods Hole, MA	Various species	136 indiv.
Nancy McHugh, NMFS, NEFSC, Woods Hole, MA	Various species	337 indiv.
Karina Mrakovich, U. S. Coast Guard Academy, New London, CT	Windowpane	1 indiv.
Paul Nitschke, NMFS NEFSC, Woods Hole, MA	Cunner	2 indiv.
Roy Pemberton, Jr., VIMS, Gloucester Point, VA	Black sea bass	606 indiv.
	Chain dogfish	1 indiv.
Anne Richards, NMFS, NEFSC, Woods Hole, MA	Goosefish	4 indiv.
Katherine Sosebee, NMFS, NEFSC, Woods Hole, MA	Spiny dogfish	173 exam.
	Dogfish spines	296 samples
	Various skates	549 exam.
	Skate spines	436 samples
	Goosefish vertebrae	37 samples
Michael Tork, NMFS, NEFSC, Woods Hole, MA	Atlantic torpedo	1 indiv.
U. S. Fish & Wildlife, Charleston, SC	Atlantic sturgeon	1 indiv.
John Ziskowski, NMFS, NEFSC, Milford, CT	Summer flounder	3 indiv.
	Winter flounder	1 indiv.

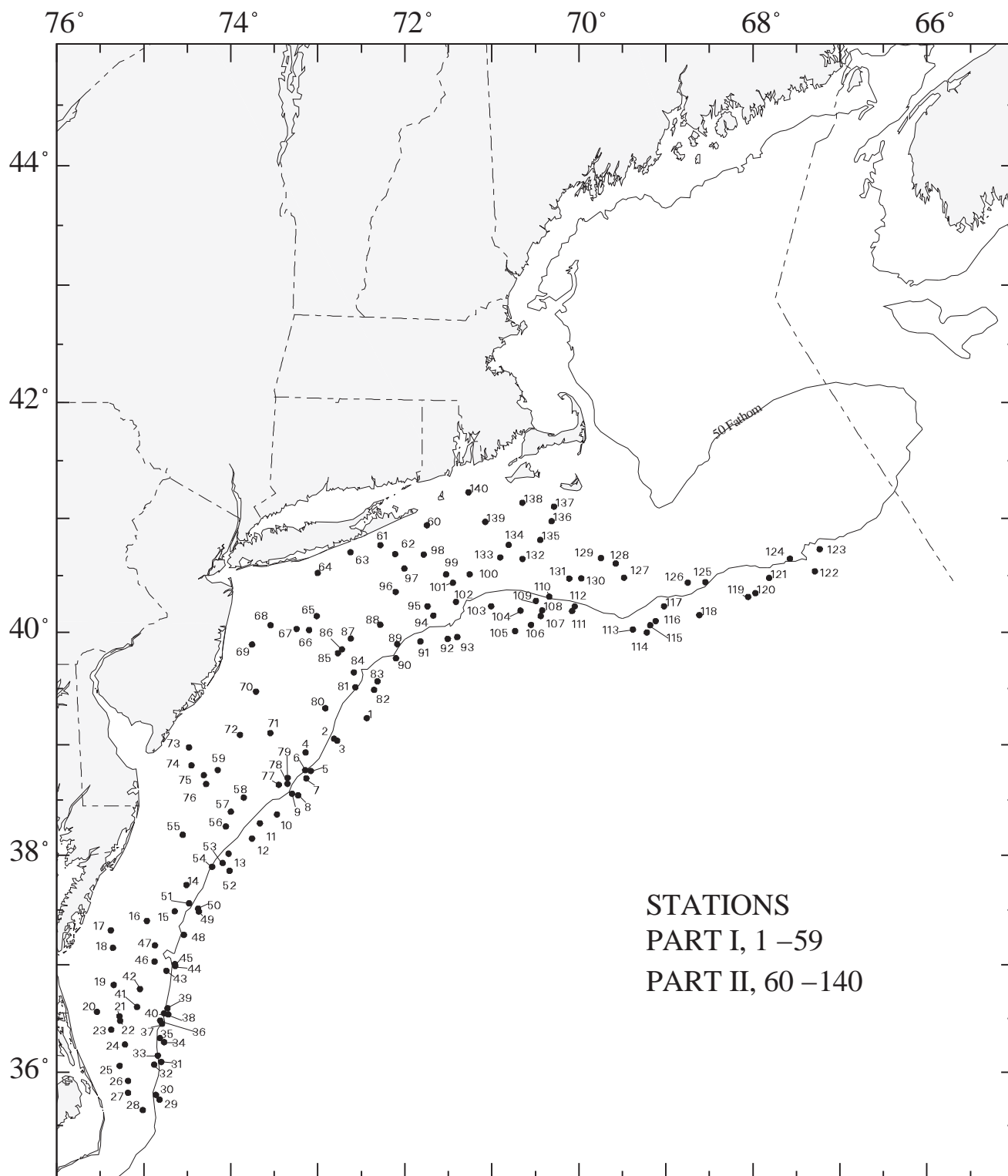


Figure 1. Trawl hauls made from FRV ALBATROSS IV, during National Marine Fisheries Service, Northeast Fisheries Science Center winter bottom trawl survey (04 –01), February 3 – 28, 2004.